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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,103

11/14/2005

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903-153 PCT/US

2411

23869 7590 07/10/2008
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EXAMINER

LEGESSE, HENOK D

ART UNIT

PAPER NUMBER

2861

MAIL DATE

DELIVERY MODE

07/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,103	Applicant(s) DIEDEREN, JACOBUS HENRICUS	
	Examiner HENOK LEGESSE	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 8, and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki (US 6,267,474) in view of Ito (US 6,193,354).

Regarding claim 1, Mochizuki teaches printing device (figs.1-3) for printing a substrate with a printing medium using the "drop-on-demand" principle (inkjet recording device), comprising a print head (4,5 in figs.2,3), which is arranged in such a manner that it can be moved to and fro substantially transversely with respect to the direction in which the substrate (paper/medium) to be printed is conveyed (fig.1, col.2, lines 39-46) and has at least one spray nozzle (inkjet recording heads 4,5 in fig.2 inherently includes nozzles) for releasing a drop of the printing medium (ink) on demand, the spray nozzle being in communication with a flexible working container (ink bag 50 in elements 20-23 in fig.2, and ink bag in element 20 in fig.3), which is arranged at a fixed position (fig.3), for degassed printing medium (ink) at a working height with respect to the spray nozzle (nozzles of head 4) which working height lies within a predetermined height range, in order to keep the pressure of the printing medium

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(ink) within a predetermined pressure range, wherein the working container (ink bag 50 in elements 20-23 in fig.2, and ink bag in element 20 in fig.3) is in communication with a releasable flexible reservoir (ink bag 40 in elements 12-15 in fig.2, and ink bag in element 12 in fig.3) for degassed printing medium.

Mochizuki does not explicitly teach the print head is piezoelectric type print head that generates shockwave in the printing medium to form a drop of the printing medium.

However, from the same endeavor Ito teaches printing device (fig.1) that utilizes a print head (3) having a piezoelectric element (7) to generate shockwave in the printing medium to form a drop of the printing medium (col.3, lines 37-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the piezoelectric type print head of Ito in the printing device of Mochizuki. The motivation being piezoelectric type print heads generates less amount of heat during printing as compared to for example thermal type print heads, thus piezoelectric type print heads can work for long period of time and in hot environments increasing productivity and print quality.

Regarding claim 2, Ito further teaches wherein the reservoir (29 in fig.1) is positioned at a height difference above the working container (21).

Regarding claim 3, Ito further teaches wherein the printing device (fig.1) is provided with displacement means (23) for moving the reservoir upwards with respect to the working container (the displacement means 23 can be used for moving reservoir 21 and/or 29 in order to maintain a predetermined pressure difference).

Regarding claim 8, Mochizuki further teaches wherein the flexible reservoir (figs.4,5) is made from a metalized plastic film which is impervious to gas (aluminum laminated film, col.3, lines 16-25).

Regarding claim 10, Mochizuki further teaches wherein the reservoir (40 in fig.4) has a front surface and a rear surface, which are connected to one another along the periphery (fig.4), an outlet opening with connecting means (41) for coupling to the working container being provided in a peripheral part (fig.4).

Regarding claim 11, Mochizuki further teaches wherein the peripheral part is shaped in such a manner that the inner wall of the reservoir (40 in fig.4) has a gradual transition in the direction of the outlet opening (41).

Regarding claims 12-14, Mochizuki as modified by Ito substantially teaches the claimed inventions, reservoir (40,50 in figs.4,5 of Mochizuki) comprising a front surface and a rear surface made from a gas-impervious, metalized plastic film, (col.3, lines 16-25 of Mochizuki) which are connected to

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one another along the periphery, a closable outlet opening with connecting means (41,51) for coupling to a working container being provided in a peripheral part (see figs.2-5 of Mochizuki). Further more in figures 4 and 5 of Mochizuki the ratio of the length of the front surface of the reservoir to its width is greater than one since the length is longer than the width.

Mochizuki as modified by Ito does not explicitly teach wherein the front surface of the reservoir has a length and a width, wherein the ratio of the length of the front surface of the reservoir to its width is greater than 2.5 (and 3).

However, it would have been an obvious matter of design choice to form the reservoir to have its length 2.5 or 3 or more times longer than its width, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose,105 USPQ 237 (CCPA 1955)

Regarding claim 15, Mochizuki further teaches wherein the peripheral part is shaped in such a manner that the inner wall of the reservoir (40 in fig.4) has a gradual transition in the direction of the outlet opening (41).

3. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki as modified by Ito and further in view of Cole (US 2003/0071722).

Regarding claim 4, Mochizuki as modified by Ito above substantially teaches the claimed invention except for the support means of the displacement means (of Ito in figs.1,2B) can be tilted towards the working container.

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However, Cole teaches displacement means comprising support means which can be tilted (paragraph 0027, fig.1, element 11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the support means in the displacement means of Ito such that it can be tilted based on the teachings of Cole. The motivation being tilting the support means requires less energy as compared to rotating it.

Regarding claim 5, Mochizuki as modified by Ito and Cole further teaches wherein the support means (37,39, figs.1, 2B of Ito) comprises a support plate (39), which can rotate about a rotation point located in the vicinity of the end which faces the working container (21), and at the opposite end is connected to counter-pressure means, and which in the horizontal position bears against supporting means (37) (see also parag.0027, fig.3B and fig.1 of Cole).

Regarding claim 6, Mochizuki as modified by Ito and Cole further teaches wherein there are signaling means (lamp/buzzer, 45 in fig.6 of Cole) for remote detection of tilting of the support plate (plate of Ito).

Regarding claim 7, Mochizuki as modified by Ito and Cole further teaches wherein the signaling means (lamp/buzzer, 45 in fig.6 of Cole) are connected to a switch (41), which is energized in the event of the support plate tilting (energized by 43).

4. Claims 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki as modified by Ito and further in view of Hildenbrand et al (US 3,708,798).

Regarding claim 9, Mochizuki as modified by Ito further teaches wherein the reservoir (29, fig.1) has a height dimension and the working container (21) has a height dimension.

Mochizuki as modified by Ito fails to teach wherein the height dimension of the reservoir, in the completely filled state, is smaller than the height dimension of the working container.

However, Hildenbrand et al teaches reservoir (10 in fig.2) has a height dimension and the working container (12) has a height dimension, wherein the height dimension of the reservoir (10), in the completely filled state, is smaller than the height dimension of the working container (12).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the height dimension of the reservoir to be smaller than that of the working container in the printing device of Mochizuki as modified by Ito based on the teachings to Hildenbrand et al in order to control high pressure flow ink from the reservoir to the working container during printing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK LEGESSE whose telephone number

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is (571)270-1615. The examiner can normally be reached on Mon - FRI, 7:30-5:00, ALT.FRI EST.TIME.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUU MATTHEW/
Supervisory Patent Examiner, Art Unit 2861
H.L.
07/07/2008